Army Geospatial Center (AGC)

LIDAR
High Resolution Elevation Data
Summary

Light Detection and Ranging (LIDAR) Data

- **Gridded Format** – GeoTIFF
  - Digital Elevation Models (dem) – 32-bit floating point gridded matrix
    - First Return DEM – designated by a1 – shows more vegetation canopy
    - Last Return DEM – designated by a2 – shows less vegetation canopy, more ground pixels
    - Bare Earth DEM – designated by dem_bare – vegetation and buildings have been removed
  - Intensity Image (int) – 8-bit
  - Merged Intensity-Color Coded Shaded Relief Image (mrg) – 24-bit
- **Resolution** – typically 1 meter, unless indicated otherwise in the file name (e.g., 1m, 75cm, 50cm)
- **Projection** – Universal Transverse Mercator (UTM)
- **Datums** – World Geodetic System 1984 (WGS84) ellipsoid for the horizontal datum. For the vertical datum, standard Buckeye data is transformed to a Geoidal datum, approximating Mean Sea Level (MSL)
  - If the elevation data is converted to approximate MSL (using EGM08, EGM96 or NAVD88 geoid models), the data folders will be annotated as "MSL" to indicate the conversion has been made. The .XML metadata file, High Resolution Data spreadsheet, and Indexes will specify the datums used.
  - Most Buckeye data older than 2009 used the WGS84 ellipsoid vertical datum.
- **Accuracies** – approximately 0.5 meter CE90 absolute horizontal and 0.3 meter LE90 absolute vertical. Accuracies will vary according to the collection altitude, the quality of the GPS signal and distance to the Differential GPS Base Station during collection.
- **Other Products** – Point Cloud Data (LAS 1.2 format) zipped with LasZip. Points are typically output in both WGS84 vertical datum and EGM08 vertical datum. In some cases, there are Extracted Features (shape files)), or DEM's overlaid with image (dem_image .QTT file).

Data Discovery

LIDAR for all CONUS and OCONUS areas can be seen in the High Resolution Terrain Data spreadsheet on the LIDAR Product Library page on all three networks. Data can also be found using the Worldwide Shape File Index or Worldwide Google Earth Index. Data that is not downloadable can be requested.

Downloading Data

- LIDAR can be downloaded from the AGC LIDAR pages on all three networks. Data is Unclassified/FOUO.
- Gridded LIDAR tiles will be in a zipped file set. OCONUS points are not typically available for download due to storage limitations, but points for some CONUS sites are available for download.

Viewing Software

- **Basic Software** - Go to the "About LIDAR" page or the AGC Software download page.
  - **Quick Terrain (QT) Reader** freeware version of QT Modeler software allows dynamic 3D viewing and basic measurements, plus it opens .QTT files. Also available from the Applied Imagery website.
  - **RTV 3DEM** Army-owned freeware does 3D views, line of sight, and surface coverage / viewshed / weapons fan. RTV 3DEM runs from the executable file and does not require installation.
- **Advanced Software** – TIVET performs 3D mensuration on a 2D color image. 3D Fusion software lays a color image on a DEM and renders in 3D. Both are available from the AGC Software page

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